

OMSI Pascal-1 Installation Procedures

**OMSI Pascal-1 V1.2
for RT11 V2, V3, V4**

Contents of the Distribution Medium

Each medium contains a complete set of distribution files.

Below is a list of these files with a brief explanation of each.

Installation files

INSTAL.DOC	Installation documentation
INSTAL.SAV	Installation program

Documentation files

USER .DOC	User's Manual
PASCAL.DOC	Language Specification
DEBUG .DOC	Debugger Manual
GUIDE .DOC	Programmer's Guide

Pascal compilers

PASFPF.SAV	Compiler for FPP machines
PASSIM.SAV	Compiler for non-FPP machines

Pascal utility programs

PASFMT.PAS	Formatter and cross reference
IMP .PAS	Post-compilation optimizer
PROFIL.PAS	Program profiler
PCL .PAS	Pascal command language interpreter
ERROR .PAS	System Error() procedure
STRING.PAS	String manipulation procedures
INTRPT.PAS	Interrupt handling examples
CSI .PAS	Interface for .CSIGEN
MACEIS.SAV	Fast assembler for EIS machines
MACSIM.SAV	Fast assembler for non-EIS machines

Pascal object libraries

LIBFPP.V3/.V2	Library for FPP on RT11 V3/V2
LIBFIS.V3/.V2	Library for FIS on RT11 V3/V2
LIBEIS.V3/.V2	Library for EIS on RT11 V3/V2
LIBSIM.V3/.V2	Library for non-EIS on RT11 V3/V2

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Debugger modules

OFPP.V3/.V2, ... ,9FPP.V3/.V2,AFPP.V3/.V2,BFPP.V3/.V2
FPP debugger modules for RT11 V3/V2
OSIM.V3/.V2, ... ,9SIM.V3/.V2,ASIM.V3/.V2,BSIM.V3/.V2
Non-FPP debugger modules for RT11 V3/V2

Demonstration programs

| | |
|------------|--------------------------|
| HEARTS.PAS | The game of Hearts |
| CHECKR.PAS | A game of checkers |
| PLO .PAS | PL/O - a simple compiler |
| RANDOM.PAS | Random number generator |
| MAZE .PAS | Amazing Demonstration |

Installation Preparation

For RT11 V3 and V4, the DMSI Pascal V1.2 system is installed by an automatic configuration procedure. For RT11 V2, the procedure is only partially automated.

Several system programs supplied by DEC are required for installation of Pascal and for use by the Pascal system. These programs are the PIP.SAV file transfer utility, the MACRO.SAV assembler, and the LINK.SAV linking loader. You should verify that these programs are on your system disk.

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Installation Dialogue

The installation procedure builds Pascal on a single target disk. The target disk must contain at least 544 free blocks if no documentation or demonstrations are desired. The documentation files require 245 blocks of storage, while the demonstration files use 175 blocks, or 964 total blocks.

To start the installation process, type:

.RU xxn:INSTAL

where xxn: is the device name and unit number of the distribution medium. This starts the installation procedure, which will ask several questions. The default answer is given in parentheses at the end of each question and will be used when you respond with only a carriage return. Below are the questions and a description of each.

DEVICE FOR THE DISTRIBUTION MEDIUM (MT:) ?

Enter the device name and unit number on which the Pascal distribution medium is mounted. If the device is "MT:", a carriage return will use this name as default.

DEVICE FOR THE TARGET DISK (SY:) ?

Enter the device name and unit number of the disk on which Pascal is to be installed.

INCLUDE DEMONSTRATION PROGRAMS AND DOCUMENTATION (YES) ?

If answered affirmatively, the demonstration programs and documentation files are included in the system installation procedure.

USE THE CURRENT SYSTEM'S CONFIGURATION (YES) ?

If answered affirmatively, the version of RT11 and the math hardware on the current system are used in configuring Pascal, and the following question is omitted.

VERSION OF RT11 TO BE USED (n) ?

Answer "4" if Pascal is to run on RT11 V4. Answer "3" if Pascal is to run on RT11 V3. Answer "2" if Pascal is to run on RT11 V2. The default will be the current version of RT11. The same Pascal system is used for RT11 V3 or V4.

IS FPP HARDWARE TO BE USED (YES/NO) ?

1. Introduction

The purpose of this document is to provide a comprehensive overview of the project's objectives, scope, and deliverables. It is intended for the project sponsor, steering committee, and other stakeholders involved in the project.

2. Project Objectives

The primary objectives of the project are to:

- 1. Develop a new product line that meets the needs of the target market.
- 2. Establish a strong brand identity for the new product line.
- 3. Achieve a target market share of 15% within the first year of launch.

3. Project Scope

The project scope includes the development, testing, and launch of the new product line. It also includes the implementation of marketing and sales strategies to promote the product.

4. Deliverables

The key deliverables of the project are:

- 1. A detailed product specification document.
- 2. A functional prototype of the product.
- 3. A comprehensive marketing and sales plan.

The project will be managed using a structured approach, with regular communication and reporting to the project sponsor and steering committee.

5. Project Organization

The project organization consists of the project manager, who is responsible for the overall management of the project, and the project team, which includes members from various departments who are responsible for the execution of the project tasks.

6. Project Risks

The project risks include the potential for delays in the development and launch of the product, as well as the risk of the product not meeting the needs of the target market.

7. Conclusion

If you will be using a machine with an FP11 floating point processor, answer yes, otherwise no. If yes, then the next two questions are skipped. The default will be the current system's configuration.

IS FIS HARDWARE TO BE USED (YES/NO) ?

If you will be using a machine with a PDP-11/40 style floating point instruction set answer yes, otherwise no. If yes, then the next question is skipped. The default will be the current system's configuration.

IS EIS HARDWARE TO BE USED (YES/NO) ?

If you will be using a machine with an extended instruction set for integer operations answer yes, otherwise no. The default will be the current system's configuration.

1. The purpose of this document is to provide information regarding the activities of the [redacted] and the [redacted] in the [redacted] area. This information is being provided to you for your information only and is not to be used for any other purpose.

2. The information contained in this document is classified as [redacted] and is being provided to you under [redacted] authority. It is to be handled in accordance with the [redacted] and is not to be released to the public or other personnel without proper authorization.

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After these questions have been answered, the configuration to be installed will be printed, as in the example:

CONFIGURATION BEING INSTALLED

SOURCE: MT:
TARGET: RK2:
RT11: V3
MATH: EIS

The installation program will then proceed to copy the files from the distribution medium to the target device.

For floppy and DECTape distribution, the installation program will prompt the user to mount the next volume when needed.

After all files have been copied, several programs need to be compiled. These are PASFMT.PAS, the Pascal text formatter; IMP.PAS, the macro code improver; PCL.PAS, the Pascal command interpreter; and PROFIL.PAS, the Pascal program profiler object module. For RT11 V3 and V4, an indirect command file automatically compiles these programs. For RT11 V2 or floppy drive systems, these programs must be compiled by typing commands on the console terminal as shown in appendix A.

If using RT11 V3 or V4, customizing of the Pascal command language program PCL, as described in appendix C, will be necessary if the target device is other than the system disk.

Installation on systems with floppy disk drives:

If your system uses single-density drives as main storage then you must build Pascal-1 manually. To generate Pascal you must select a compiler from PASFPP.SAV or PASSIM.SAV and call it PASCAL.SAV. You must also select a support library from LIBFIS.V2/V3, LIBEIS.V2/V3, or LIBSIM.V2/V3 and call it PASCAL.OBJ. The debugger consists of 12 object modules that must be placed on your system as A.OBJ, B.OBJ, O.OBJ, ..., 9.OBJ. The distribution kit contains debugger modules for RT11 versions 2 and 3/4 supporting FPP and FIS/EIS/SIM floating point hardware. Choose those 12 files appropriate to your system. After transferring the files given above, you have a Pascal system capable of compiling, assembling, linking, debugging, and executing Pascal programs. The utilities, PASFMT, IMP, PCL, PROFIL, and STRING may be stored on another device and called when needed.

If your system has double-density drives with at least 544 free blocks, you may use the automated installation driver, INSTAL.SAV, to partially build your Pascal system. The installation procedure will run out of space shortly after creating the indirect command file, PASCAL.COM. The steps usually performed in this command file must now be done

manually using an additional drive for intermediate files.
All files used by Pascal-1 V1.2 can be stored on a system
disk.

With either single-density or double-density drive systems
follow the sample installation given in appendix A.

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Sample Installation

This installation is from magtape to the system disk on RT11 V3 with FPP. The "{cr}" means that a carriage return was the only response.

.RU MT:INSTAL

INSTAL --- System installation for OMSI Pascal-1 V1.2 on RT11

In answering the following questions, a default answer is given in parentheses. The default will be used when just the return key is pressed. For details about the question, type a '?'; otherwise type the desired response.

Device for the distribution medium (MT:) ? {cr}

Device for the target disk (SY:) ? {cr}

Include demonstration programs and documentation (YES) ? {cr}

Use current system's configuration (YES) ? {cr}

Configuration being installed:

SOURCE: MT:
TARGET: SY:
RT11: V3
MATH: FPP

Copying files:

| | | |
|---------------|----|---------------|
| MT:USER .DOC | to | SY:USER .DOC |
| MT:PASCAL.DOC | to | SY:PASCAL.DOC |
| MT:DEBUG .DOC | to | SY:DEBUG .DOC |
| MT:GUIDE .DOC | to | SY:GUIDE .DOC |
| MT:PASFPP.SAV | to | SY:PASCAL.SAV |
| MT:MACEIS.SAV | to | SY:MAC .SAV |
| MT:LIBFPP.OBJ | to | SY:PASCAL.OBJ |
| MT:AFPP .V3 | to | SY:A .OBJ |
| MT:BFPP .V3 | to | SY:B .OBJ |
| MT:OFPP .V3 | to | SY:O .OBJ |
| MT:1FPP .V3 | to | SY:1 .OBJ |
| MT:2FPP .V3 | to | SY:2 .OBJ |
| MT:3FPP .V3 | to | SY:3 .OBJ |
| MT:4FPP .V3 | to | SY:4 .OBJ |
| MT:5FPP .V3 | to | SY:5 .OBJ |
| MT:6FPP .V3 | to | SY:6 .OBJ |
| MT:7FPP .V3 | to | SY:7 .OBJ |
| MT:8FPP .V3 | to | SY:8 .OBJ |
| MT:9FPP .V3 | to | SY:9 .OBJ |
| MT:PASFMT.PAS | to | SY:PASFMT.PAS |
| MT:IMP .PAS | to | SY:IMP .PAS |
| MT:PROFIL.PAS | to | SY:PROFIL.PAS |
| MT:PCL .PAS | to | SY:PCL .PAS |
| MT:STRING.PAS | to | SY:STRING.PAS |


```
MT:HEARTS.PAS to SY:HEARTS.PAS
MT:CHECKR.PAS to SY:CHECKR.PAS
MT:RANDOM.PAS to SY:RANDOM.PAS
MT:MAZE .PAS to SY:MAZE .PAS
```

All files have been copied - beginning compilations

After all these files have been copied, the installation program creates the indirect command file PASCAL.COM, which then compiles the Pascal source programs. The compilation process is not shown here for reasons of brevity. For RT11 V2 users this command file will not be created; the user must do the following steps to compile the supplied source programs.

```
.ASS yyn DK                                (yyn: is the target device)
.RU PASCAL
*PASFMT=PASFMT
.RU PASCAL
*IMP=IMP
.RU PASCAL
*PROFIL=PROFIL
.RU PASCAL
*PCL=STRING,PCL
.R MACRO
*PASFMT=PASFMT
*IMP=IMP
*PROFIL=PROFIL
*PCL=PCL
*↑C
.R LINK
*PASFMT=PASFMT,PASCAL
*IMP=IMP,PASCAL
*PCL=PCL,PASCAL/M:60000
*↑C
.R PIP
*PASFMT.PAS,PASFMT.MAC,PASFMT.OBJ,IMP.PAS,IMP.MAC,IMP.OBJ/D
*PROFIL.PAS,PROFIL.MAC,PCL.MAC,PCL.OBJ/D
*↑C
```

and if the demonstration programs are included:

```
.RU PASCAL
*HEARTS=HEARTS
.RU PASCAL
*CHECKR=CHECKR
.RU PASCAL
*MAZE=MAZE
.R MACRO
*HEARTS=HEARTS
*CHECKR=CHECKR
*MAZE=MAZE
*↑C
.R LINK
```

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```
*HEARTS=HEARTS,PASCAL
*CHECKR=CHECKR,PASCAL
*MAZE=MAZE,PASCAL
*↑C
.R PIP
*HEARTS.MAC,HEARTS.OBJ,CHECKR.MAC,CHECKR.OBJ/D
*MAZE.MAC,MAZE.OBJ/D
*↑C
```

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Programming Changes in OMSI Pascal-1 V1.2

Four specific language features have been changed from V1.1 to V1.2, all of which are related to I/O characteristics. If a program that was written using V1.1 fails to operate properly with V1.2, check the following points:

- (1) In V1.1, Eoln() on interactive terminal files had the initial value True. This has changed to False in V1.2.

Symptom: Program "hangs", or ignores the first input line.

Cure: Remove the initial Readln(), or replace it by the statement "if Eoln() then Readln()", which runs correctly with either version.

- (2) The V1.1 Read() procedure, when reading a (packed) array of Char, ignored leading blanks and terminated on a blank or a comma. The V1.2 Read() procedure will read characters without skipping blanks, and terminates at Eoln() or when the array is filled.

Symptom: Program does not interpret commands properly, or loops.

Cure: Reprogram sections that use the V1.1 Read(). Programs that are heavily dependent on the V1.1 style Read() may be more easily recoded using the V1.2 string package.

- (3) The declaration "file of Char" is no longer equivalent to the declaration "Text". This change corresponds to the more strict type checking of the draft ISO Pascal Standard.

Symptom: Compiler error message "TEXT file expected".

Cure: Substitute the type Text and recompile.

- (4) The Seek(), Deposit(), and CloseRandomFile() procedures supplied with V1.1 have been superseded by the built-in procedure Seek().

Symptom: Unpredictable I/O failures. The V1.1 procedures will compile under V1.2, but will not operate correctly.

Cure: Reprogram affected sections using the built-in Seek(). Note that the V1.2 Seek() numbers file records beginning at 1.

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DEPARTMENT OF THE INTERIOR

MINING PATENT

Know all men by these presents, that I, the undersigned, do hereby certify that the following is a true and correct copy of the original of the same as the same appears in the files of the Department of the Interior, at Washington, D. C.

IN WITNESS WHEREOF, I have hereunto set my hand and the seal of the Department of the Interior, at Washington, D. C., this 1st day of January, 1947.

JOHN EDGAR HOOVER, Director

By _____, Special Agent in Charge

THE UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D. C.

TO ALL WHOM THESE PRESENTS SHALL COME, I, the undersigned, do hereby certify that the following is a true and correct copy of the original of the same as the same appears in the files of the Department of the Interior, at Washington, D. C.

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By _____, Special Agent in Charge

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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D. C.

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Customizing the Pascal command language program PCL

For sites using RT11 V3 or V4, The Pascal command language program PCL can be used to automate the compilation process. PCL accepts a line of input in standard CSI format and produces an indirect command file to perform the compilation, assembly, linking, and start-up of a program.

When OMSI Pascal-1 is installed on the system disk, PCL will need no modification; the PCL.SAV created in the installation procedure will work correctly.

If OMSI Pascal-1 is to be on a non-system disk, PCL.PAS will need modification and recompilation. The editing can be done with a standard text editor. Change the first line of PCL.PAS to:

```
PascalDevice = 'yn:'; (* Device for the Pascal files *)
```

where yn: is the device name and unit number on which the Pascal files can be found. After this change has been made, recompile PCL with the following commands:

```
.ASS yn DK  
.RU PASCAL  
*PCL=PCL  
.MAC PCL  
.LINK PCL,PASCAL/STACK:60000
```

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